

II. REMARKS

Claims 1-32 are pending. The Applicants have amended claims 1, 3, 7, 21, 25 and 26, and have added new claims 30-32. In light of the following, all of the claims as amended are now in condition for allowance.

Claim of Priority

The Applicants have included a specific reference to the prior application in the first sentence of the specification.

Objection to the Drawings

The Applicants have amended the drawings per the enclosed Request for Drawing Change, and request the Examiner's approval thereof. The Applicants will submit corrected formal drawings after the Examiner approves the amended drawings.

Objection to the Specification and Second Substitute Specification

The Applicants have amended the specification to correct the informalities pointed out by the Examiner as well as other informalities. Because of the many amendments made to the specification, the Applicants enclose a clean second substitute specification and a marked-up second substitute specification that shows changes made to the previously submitted first substitute specification. But like the first substitute specification, the second substitute specification contains no new matter.

Claim Objections

The Applicants have amended claims 3 and 7 to correct the informalities pointed out by the Examiner.

Rejection of Claims 1-3, 5-6, and 21-24 Under 35 U.S.C. § 102(b) As Being Anticipated By U.S. Patent 5,206,492 to Shepard et al.

As discussed below, the Applicants disagree with this rejection.

Claim 1

Claim 1 as amended recites a beam-sweep mechanism having a permanent magnet.

For example, referring, e.g., to FIG. 22, a beam-sweep mechanism 3042 includes a permanent magnet 3052.

Conversely, Shepard does not disclose a beam-sweep mechanism that includes a permanent magnet. Referring, e.g., to FIG. 10, col. 10, line 48 – col. 11, line 25, Shepard discloses a coil 158 that when energized forms an electromagnet that attracts a magnet 156. When current to the coil 158 is pulsed, a reflector 152, to which the magnet 156 is attached, rotates back and forth, thus sweeping a laser beam 170 across a target. Therefore, unlike the claimed beam-sweep mechanism, Shepard's beam-sweep mechanism includes an electromagnet 158, not a permanent magnet.

Claims 2-3 and 5-6

These claims are patentable by virtue of their dependencies on independent claim 1.

Claim 21

Claim 21 as amended recites sweeping a beam across a target by moving a magnet that is unattached to a beam reflector.

For example, referring, e.g., to FIGS. 22 - 23, to sweep a beam across a target, one moves a magnet 3052 by pressing a scan button 3020. The moved magnet 3052, now in its sweep position (FIGS. 23 and 25A), repels the magnet 3048 attached to the mirror 3046, thus causing the mirror to sweep a beam. Note that the magnet 3052 is unattached to the mirror 3046.

Conversely, Shepard does not disclose sweeping a beam across a target by moving a magnet that is unattached to a beam reflector. Referring, e.g., to FIG. 10, col. 10, line 48 – col. 11, line 25, Shepard discloses a coil 158 that when energized forms an electromagnet that attracts a magnet 156. When current to the coil 158 is pulsed, a reflector 152, to which the magnet 156 is attached, rotates back and forth, thus sweeping a laser beam 170 across a target. But unlike the claimed magnet, the electromagnet 158

does not move. And although the magnet 156 moves, it, unlike the claimed magnet, is attached to the reflector 152.

Claims 22-24

These claims are patentable by virtue of their dependencies on independent claim 21.

Rejection of Claims 1, 7-10, 21, and 25-26 Under 35 U.S.C. § 102(b) As Being Anticipated By U.S. Patent 5,280,165 to Dvorkis et al.

As discussed below, the Applicants disagree with this rejection.

Claim 1

Claim 1 as amended recites a beam-sweep mechanism having a permanent magnet.

For example, referring, e.g., to FIG. 22, a beam-sweep mechanism 3042 includes a permanent magnet 3052.

Conversely, Dvorkis does not disclose a beam-sweep mechanism that includes a permanent magnet. Referring, e.g., to FIG. 8, col. 11, line 45 – col. 12, line 37, Dvorkis discloses a coil 230 that when energized forms an electromagnet that attracts a magnet 228. When an AC current drives the coil 228, a scanning component 220, to which the magnet 228 is attached, rotates back and forth, thus sweeping a beam across a target. Therefore, unlike the claimed beam-sweep mechanism, Dvorkis' beam-sweep mechanism includes an electromagnet 230, not a permanent magnet. Furthermore, although the magnetic member 232 may be a permanent magnet, it does not cause the scanning component 220 to sweep a beam.

Claims 7-9

These claims are patentable by virtue of their dependencies on independent claim 1.

Claim 10

Claim 10 as amended recites a beam-reflector assembly having a mirror and a first magnet, and a beam-sweep mechanism having a second magnet. The sweep mechanism is operable to retain the mirror in a home position by attracting the first magnet with the second magnet, and is operable to rotate the mirror by repelling the first magnet with the second magnet.

For example, referring, e.g., to FIGS. 22 - 23, a beam-reflector assembly 3040 includes a mirror 3046 and a magnet 3048, and a beam-sweep mechanism 3042 includes a magnet 3052. The sweep mechanism 3042 retains the mirror 3046 in a home position (FIGS. 22, 25A) by attracting the magnet 3048 with the magnet 3052. The sweep mechanism 3042 also rotates the mirror by repelling the magnet 3048 with the magnet 3052 (FIGS. 23, 25A).

Conversely, Dvorkis does not disclose retaining a mirror in a home position by attracting a first magnet with a second magnet and rotating the mirror by repelling the first magnet with the second magnet. Referring, e.g., to FIG. 8, col. 11, line 45 – col. 12, line 37, Dvorkis discloses a coil 230 that when energized forms an electromagnet. Although the electromagnet 230 rotates the scanning component 220 when it repels the magnet 228, it does not retain the scanning component 220 in its home position (the position of the component 220 when the coil 230 is not energized) when it attracts the magnet 228. To the contrary, the electromagnet 230 actually forces the scanning component 220 out of its home position when it attracts the magnet 228. Furthermore, although the magnetic member 232 can retain the scanning component 220 in its home position when it attracts the magnet 228 (as long as the coil 230 is not energized), it does not repel the magnet 228, and thus does not rotate the scanning component 220 by repelling the magnet 228. Consequently, Dvorkis does not disclose a beam-sweep mechanism having a magnet that both retains the scanning component 220 in its home position by magnetic attraction and rotates the scanning component 220 by magnetic repulsion.

Claim 21

Claim 21 as amended recites sweeping a beam across a target by moving a magnet that is unattached to a beam reflector.

For example, referring, e.g., to FIGS. 22 - 23, to sweep a beam across a target, one moves a magnet 3052 by pressing a scan button 3020. The moved magnet 3052, now in its sweep position (FIGS. 23 and 25A), repels the magnet 3048 attached to the mirror 3046, thus causing the mirror to sweep a beam. Note that the magnet 3052 is unattached to the mirror 3046.

Conversely, Dvorkis does not disclose sweeping a beam across a target by moving a magnet that is unattached to a beam reflector. Referring, e.g., to FIG. 8, col. 11, line 45 – col. 12, line 37, Dvorkis discloses a coil 230 that when energized forms an electromagnet that attracts a magnet 228. When an AC current drives the coil 230, a scanning component 220, to which the magnet 228 is attached, rotates back and forth, thus sweeping a beam across a target. But unlike the claimed magnet, the electromagnet 230 does not move. And although the magnet 228 moves, it, unlike the claimed magnet, is attached to the scanning component 220.

Claim 25

This claim is patentable by virtue of its dependency on independent claim 21.

Claim 26

Claim 26 as amended is patentable for reasons similar to those recited above in support of the patentability of claim 10.

Rejection of Claims 4 and 15-20 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Shepard in View of U.S. Patent 5,600,120 to Peng

As discussed below, the Applicants disagree with this rejection.

Claim 4

This claim is patentable by virtue of its dependency on independent claim 1.

Claim 15

Claim 15 recites a beam-reflector assembly having a first magnet, and a beam-sweep mechanism having a second magnet configured for mechanical movement

between a first position in which the second magnet attracts the first magnet and a second position in which the second magnet repels the first magnet.

For example, referring, e.g., to FIGS. 22, 23, and 25A, a beam-sweep mechanism 3042 includes a magnet 3052 that is configured for movement between a home position and a sweep position. In the home position, the magnet 3052 attracts a magnet 3048 of a beam-reflector assembly 3040, and in a sweep position, the magnet 3052 repels the magnet 3048.

Conversely, Shepard does not disclose a beam-sweep mechanism that includes a moveable magnet. Referring, e.g., to FIG. 10, col. 10, line 48 – col. 11, line 25, as discussed above, Shepard's electromagnet 158 is not moveable, and although the magnet 156 moves, it is attached to the scan component 220, and is thus not part of a beam-sweep mechanism. That is, the magnet 156 corresponds to the claimed first magnet, not the claimed second magnet.

Furthermore, although Peng arguably discloses a beam-sweep mechanism that includes a moveable magnet, Peng fails to disclose or suggest the teaching that Shepard lacks, namely a beam-sweep mechanism having a magnet moveable between two positions in which the magnet respectively attracts and repels a magnet of a beam-reflector assembly. Referring to e.g., to FIG. 5 and col. 6, lines 32-59, although Peng discloses an electromagnet 12 that moves a mirror 2 by attracting and repelling a magnet 11, the electromagnet 12 is stationary, and, thus, does not move. This analysis also applies to the electromagnet 12 of FIG. 7. Furthermore, referring to e.g., to FIG. 6 and col. 6, line 60 – col. 7, line 25, although Peng discloses a moveable magnet 17 that moves the mirror 2 by repelling the magnet 11, the magnet 17 cannot be maneuvered into a position where it attracts the magnet 11.

Claims 16-20

These claims are patentable by virtue of their dependencies on claim 15.

Rejection of Claim 11 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Dvorkis in View of Peng

As discussed below, the Applicants disagree with this rejection.

Claim 11

This claim is patentable by virtue of its dependency on independent claim 10.

Rejection of Claims 12–14 and 27-29 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Dvorkis in View of Shepard

As discussed below, the Applicants disagree with this rejection.

Claims 12-14

These claims are patentable by virtue of their dependencies on independent claim 10.

Claims 27-29

These claims are patentable by virtue of their dependencies on independent claim 26.

Conclusion

In light of the foregoing, claims 2, 4-6, 8-20, 22-25, and 27-29 as previously pending, claims 1, 3, 7, 21, 25, and 26, as amended, and new claims 30-32 are in condition for full allowance, which is respectfully requested.

In the event additional fees are due as a result of this amendment, payment for those fees has been enclosed in the form of a check. Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

DATED this 2nd day of May, 2003.

Respectfully Submitted,

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